ZOOLOGY.—*A new* Eulithobius, *with a key to the known American species* (Chilopoda: Lithobiidae).

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It seems characteristic of the rich lithobiid fauna of temperate North America that it is in general highly endemic. The same can be said for the lithobiids of western Europe, so that not only is each region inhabited by species which are for the most part peculiar to itself, but many of the species-complexes—some regard them as genera or subgenera—appear to follow suit. The Appalachians, the Southwest, and the Pacific coast all support genera many of which have no apparent counterparts or representation in the western Palearctic, though a persistent Asian flavor is quite often evident.

Eulithobius can now definitely be said to be represented, however poorly, in both regions by species which are unquestionably very closely akin. Having had the uncommon opportunity of being able to compare Austrian specimens of *E. punctulatus* (C. L. Koch) (? = *validus* (Meinert))[1] directly with two of the three known American species, *sphactes* n. sp. and *fattigi* Chamberlin, I can say unhesitatingly that the generic characters and distinctive general habitus that they share seem not the result of evolutionary convergency, but of parallel descent.

The Austrian specimens differ significantly from both *sphactes* and *fattigi* in several respects, e.g.: spur VTiP is present in both American species but entirely absent in *punctulatus*; pretarsal unguiform (inner) accessory claws occur on legs 14 of *punctulatus* but not on those of *sphactes* or *fattigi*; *punctulatus* has two pectines[2] on each of the first 13 proximo- and distotarsi, whereas neither American form has two proximotarsal pectines; and perhaps most strikingly of all, in my specimens of *punctulatus* no pretarsus has an outer (setiform) accessory spur, whereas they occur on each of the first 13 legs of the American species. In most other features, however, the three are very similar.

[1] Thanks to the kindness of the late Carl graf Attems I have been able to obtain European specimens of this and a few other species, generally most uncommon in American collections. Attems had labeled them as *validus* Meinert, 1872, and had collected them at Graz, Austria. Broelemann, Verhoeff, Latzel, and Attems all equated *punctulatus*, 1847, with *validus*, 1872, though only Broelemann used the older name. The others used *validus*, evidently because it could be identified from its original description, whereas they felt *punctulatus* could not be assigned with equal confidence. But if we agree that both names apply properly to the same zoological entity, then the older Koch name should be used.

Eulithobius sphactes, n. sp.

The new species seems most like *E. fattigi*, known only from Boston, (in southcentral) Georgia, and northeastern Alabama. In both, the plectrotaxy is quite similar, as are the numbers of basal gonopod spurs and the ocellar arrangements. However, they differ most conspicuously in that the female gonopod claw is tripartite in *fattigi* but undivided in *sphactes*. In addition, the distotarsal pectines of *sphactes* are double, while those of *fattigi* are single. Finally, *fattigi* is apparently a smaller form with fewer antennal articles and prosternal teeth.

Holotype: ♂. Oklahoma, Muskogee County, Fort Gibson, Dresser's Cave. January 28, 1958; Thomas C. Barr, leg. U.S. National Museum Myriapod No. 2467.

BODY LENGTH. 29 mm. COLOR. Antennae, first 5–6 articles deep brownish red, those following becoming browner and finally yellowish. Cephalic plate, first tergite, predominantly deep red tinged with brown, the remaining tergites essentially mahogany except for areas of muscle attachment which are yellowish. Legs, first 13 with yellowish-orange prolateral surfaces, their postlateral surfaces whitish yellow to white, the tarsi entirely yellowish orange; last two pairs of legs entirely mahogany. Prosternum and prehensors reddish light brown. Sternites yellowish light brown.

ANTENNAE. Left, incomplete, with 34+ articles; right, complete, with 46 articles, 18 mm. All articles longer than wide. Vestiture increasing distally, relatively sparse on first and second, very dense distal to twelfth or so. CEPHALIC

[2] See the discussion of pectines and pectinal setae following the key to species at the end of the article.

PLATE. Wider than long (w = 3.8 mm, l = 3.5 mm); sides nearly straight, very slightly diverging anteriorly; large abrupt lateral interruptions present. Very sparsely, shortly setose. OCULAR AREA. Organ of Tömösvary and single posterior isolated ocellus both large, the latter weakly reniform. Upper ocellar series with larger, elongate ocelli, ocelli of remaining series essentially circular. 45–50 ocelli, disposed irregularly in 8–10 indistinct rows. PREHENSORIAL SEGMENT. Prosternum anteriorly sparsely setose, posteriorly glabrous. Prosternal teeth blunt, robust; 13-13, the diastema U-shaped; right porodont socket distinct, left porodont and socket totally absent.

TERGITES. Posterior angles of 6-7-9-11-13 produced; those of 9-11-13 very strongly, with long acute points; those of 7 very broad as in *Neolithobius*; those of 6 relatively shorter, apically rounded and margined. Surfaces of first two major tergites (pedal 1 and 3) smooth, succeeding major tergites tuberculate, each tiny pointed tubercle bearing a minute seta. Lateral margins of all tergites pronounced. Setae sparse, very small. LEGS 1–13. All tarsi distinctly divided, their sutures incomplete dorsally but without true condyles. Each pretarsus with a conspicuous inner (unguiform) and outer (setiform) accessory claw or spur. Pectines of distotarsi double, the setae relatively strong, decumbent; pectines of proximotarsi single. LEGS 14–15. Tarsi divided but each with a true dorsal condyle. Pretarsi without accessory claws. Penult legs each with a long, shallow, ventral prefemoral and a femoral groove; prefemur also with a dorsal groove. Inner surfaces of femur, tibia, and whole tarsus minutely porigerious. As a whole, each leg very long and thin, without sexual modifications. Ultimate legs each with a long shallow groove dorso-mesally on the prefemur; femur, and tibia without grooves. Ventrally a long shallow groove on prefemur and femur. Femur, tibia, and tarsus each minutely porigerous on inner surfaces. As a whole very thin and long (17 mm), without sexual modifications. COXAL PORES. Present on legs 12–15, i.e., 10-11-10-9. Most pores extremely elongate, occurring on each coxa in a linear series sunken in a deep groove. Last three coxae laterally armed.

POSTPEDAL SEGMENTS. Pregenital sternite relatively densely setose, medially deeply diastemate; gonopods uniarticulate, minute.

Allotype: ♀. See data for holotype.

Except for the following significant departures, the female allotype agrees closely with the holotype. Body length, 30 mm. Antennae, right absent, left was 46 articles, 19 mm long. Color as in holotype except for cephalic plate and first tergite which are less reddish and more brownish. Prosternal teeth, left 9, right 7; porodonts indistinct. Longest ultimate leg 14 mm, unmodified. Gonopods with 2 + 2 basal spurs, each evenly, gradually acuminate (not abruptly, angularly so as in *fattigi*); claw strictly single, undivided, apically sharply pointed.

MALE HOLOTYPE

	Dorsal				*Ventral*			
	*C**	*P*	*F*	*Ti*	*Tr*	*P*	*F*	*Ti*
1		amp	ap	a		mp	amp	amp
2		amp	ap	ap		amp	amp	amp
3		amp	ap	ap		amp	amp	amp
4		amp	ap	ap		amp	amp	amp
5		amp	ap	ap		amp	amp	amp
6		amp	ap	ap		amp	amp	amp
7		amp	ap	ap		amp	amp	amp
8		amp	ap	ap		amp	amp	amp
9		amp	ap	ap		amp	amp	amp
10		amp	ap	ap		amp	amp	amp
11	a	amp	ap	ap		amp	amp	amp
12	a	amp	ap	ap	m	amp	amp	amp
13	a	amp	ap	ap	m	amp	amp	amp
14	a	amp	p	p	m	amp	amp	am
15	a	amp	p		m	amp	amp	am

* C = coxa, P = prefemur, F = femur, Ti = tibia, Tr = trochanter; a = anterior spur, m = medial, p = posterior.

Plectrotaxy as in the holotype, except that DCA begins on 10 rather than 11.

Paratype: ♂. See data for holotype.

Except for the following, very similar to the holotype. Body length, 26 mm. Antennae, right broken, 38+ articles; left with 46 articles. Prosternal teeth, right 8, left 9; porodonts large and distinct.

Plectrotaxy differing from that of holotype as follows: 15V = 01331 (recently regenerated): DFA = 1–12, DTiA = 1–12.

Paratype ♂. See data for holotype.

Differing significantly in the following features: body length 24 mm; antennae, right broken, 21+, left with 47 articles; prosternal teeth, left 7, right 9, porodonts distinct. Plectrotaxy unknown, most legs lost.

AMERICAN SPECIES OF EULITHOBIUS

The following key should usually facilitate the identification of the three forms known presently from the United States. It is admittedly weak in

its attempt to separate the males, especially those of *hypogeus* which are known to me only through the original description. There should be no problem in distinguishing between either sex of *sphactes* and *fattigi*: the pectinal setae of the distotarsi alone will suffice. But since plectrotaxy seems untrustworthy and many of the important details of *hypogeus* are unknown, we cannot predict with certainty at this time how its males can be expected consistently to differ from those of the other species.

1a. Females..... 2
1b. Males..... 4
2a. Gonopod claw undivided; basal spurs 2 + 2, each apically evenly, gradually acuminate, not abruptly or angularly so. Distotarsi 1–13 each with 2 pectines.....
sphactes, n. sp.
2b. Gonopod claw tridentate; basal spurs 2 + 2 or 3 + 3 (in *fattigi* each apically abruptly, angularly acuminate). Distotarsi 1–13, at least of *fattigi*, each with one pecten..... 3
3a. Basal spurs of gonopod 2 + 2.....
fattigi Chamberlin
3b. Basal spurs of gonopod 3 + 3.....
hypogeus Chamberlin
4a. Antennal articles of adults numbering on the order of 35–37. Ocular area apparently not containing the usual large single posterior ocellus. (15D = 10210, 15V = 01321, 14V = 01331)[3].....*hypogeus* Chamberlin
4b. Antennal articles of adults numbering on the order either of 37 or 46–47. Ocular area with a clearly separated larger posterior ocellus. (15D = 10310, 15V = 01331, 01332, 14V = 01331, 01332)[3]..... 5
5a. Distotarsi 1–13 each with two pectines. Antennal articles varying around 46.....*sphactes*, n. sp.
5b. Distotarsi 1–13 each with but one pecten. Antennal articles varying around 37.....
fattigi Chamberlin

[3] There is reason to suspect that the quantitative plectrotaxic formulae for legs 14 and 15 are not invariable, hence are not altogether reliable, at least in the case of these species.

CONCERNING THE PECTEN AND PECTINAL SETAE

A new morphological character, never heretofore employed, has proved most useful, indeed indispensible, in the study of these species.

If we examine the ventral surface of any of the first thirteen tarsi of *sphactes*, we find setae arranged in two ways: A) randomly disposed as on the dorsal surface, these setae inclined at different angles and varying somewhat in length and thickness; B) disposed in one or more rows parallel to the axis of the tarsus, these setae strongly, uniformly decumbent, equal in length and width, and slightly stouter than the others. If these seriate setae were longer and more curved, and if their rows were dorsal, they might easily remind us of the calamistrum of a cribellate spider. Since such a row of setae roughly resembles a kind of comb or rake, I have named it a pecten (plural, pectines), and its constituent setae, pectinal setae.

In *sphactes* the proximal tarsal article (the proximotarsus) bears one pecten, as does that of *fattigi*, but there are two such pectines in the European *punctulatus*. The distotarsus of *sphactes* bears two pectines, as does that of *punctulatus*, while in *fattigi* we find only one.

This character promises to resolve problems in certain other lithobiid groups where a number of significant pectinal conditions have been identified. In some of the smaller forms, e.g. *Nadabius pullus* (Bollman), the pectinal setae, though less obvious, are still distinctive in being strongly decumbent and seriate, hence identifiable.